

# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.64



Product: 3079953 - AS+ Bend DN 100 67°  
 Unit: 1 piece  
 Manufacturer: Wavin Germany Twist  
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 49767 Twist  
 Germany  
 Contact: <https://www.wavin.com/en-en>

LCA standard: EN15804+A2 (2019)  
 Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
 Externally verified: Yes  
 Issue date: 08-04-2022  
 End of validity: 08-04-2027  
 Verifier: Harry van Ewijk - SGS Search



This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

Wavin AS+ is a mineral-reinforced polypropylene (PP) low noise soil and waste solution. The AS+ has a unique material composition for optimal noise reduction.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin Germany Twist (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

## Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**GWP-total** = EF Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

## Statement of Confidentiality

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# Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.07E+0	3.94E-2	5.41E-2	1.16E+0	1.67E-2	5.56E-1	3.47E-3	-6.49E-1	1.09E+0
GWP-f	kg CO2 eq	1.07E+0	3.94E-2	4.41E-2	1.15E+0	1.67E-2	5.31E-1	3.47E-3	-7.00E-1	1.00E+0
GWP-b	kg CO2 eq	-1.90E-3	1.82E-5	6.60E-3	4.72E-3	1.02E-5	2.54E-2	6.74E-6	5.14E-2	8.15E-2
GWP-luluc	kg CO2 eq	9.45E-4	1.44E-5	3.39E-3	4.35E-3	5.92E-6	1.38E-4	1.38E-7	-5.22E-4	3.97E-3
ODP	kg CFC11 eq	8.70E-8	8.69E-9	5.03E-9	1.01E-7	3.86E-9	3.27E-8	2.01E-10	-2.28E-8	1.15E-7
AP	mol H+ eq	4.74E-3	2.28E-4	2.12E-4	5.18E-3	9.53E-5	7.80E-4	4.80E-6	-2.34E-3	3.72E-3
EP-fw	kg P eq	2.93E-5	3.97E-7	6.71E-7	3.03E-5	1.38E-7	6.89E-6	6.30E-9	-1.30E-5	2.43E-5
EP-m	kg N eq	8.99E-4	8.05E-5	5.57E-5	1.04E-3	3.41E-5	2.04E-4	2.94E-6	-4.16E-4	8.60E-4
EP-T	mol N eq	1.01E-2	8.87E-4	5.88E-4	1.16E-2	3.76E-4	2.25E-3	1.95E-5	-4.64E-3	9.61E-3
POCP	kg NMVOC eq	3.48E-3	2.53E-4	1.69E-4	3.90E-3	1.07E-4	6.92E-4	6.26E-6	-2.03E-3	2.68E-3
ADP-mm	kg Sb eq	9.39E-5	9.97E-7	9.08E-7	9.58E-5	4.33E-7	2.73E-6	4.87E-9	-6.13E-6	9.28E-5
ADP-f	MJ	2.28E+1	5.94E-1	5.56E-1	2.39E+1	2.57E-1	2.41E+0	1.47E-2	-2.31E+1	3.56E+0
WDP	m3 depriv.	1.05E+0	2.12E-3	3.30E-1	1.38E+0	7.88E-4	5.47E-2	8.62E-5	-4.92E-1	9.47E-1
PM	disease inc.	4.30E-8	3.54E-9	2.88E-9	4.94E-8	1.51E-9	1.25E-8	1.01E-10	-2.29E-8	4.06E-8
IR	kBq U-235 eq	4.20E-2	2.49E-3	7.42E-4	4.52E-2	1.12E-3	8.49E-3	6.74E-5	-1.43E-2	4.06E-2
ETP-fw	CTUe	2.57E+2	5.29E-1	8.47E-1	2.58E+2	2.09E-1	5.73E+0	1.22E-2	-6.97E+0	2.57E+2
HTP-c	CTUh	4.28E-10	1.72E-11	3.63E-11	4.81E-10	7.42E-12	3.19E-10	3.62E-13	-1.53E-10	6.55E-10
HTP-nc	CTUh	1.22E-7	5.79E-10	8.92E-10	1.23E-7	2.49E-10	4.16E-9	7.31E-12	-4.60E-9	1.23E-7
SQP	Pt	5.27E+0	5.15E-1	5.39E-2	5.84E+0	2.20E-1	1.67E+0	3.77E-2	-1.03E+1	-2.52E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.22E+0	7.43E-3	1.83E+0	3.05E+0	3.69E-3	2.14E-1	5.45E-4	-2.05E+0	1.22E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.22E+0	7.43E-3	1.83E+0	3.05E+0	3.69E-3	2.14E-1	5.45E-4	-2.05E+0	1.22E+0
PENRE	MJ	2.44E+1	6.30E-1	6.05E-1	2.56E+1	2.73E-1	2.56E+0	1.56E-2	-2.48E+1	3.70E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.44E+1	6.30E-1	6.05E-1	2.56E+1	2.73E-1	2.56E+0	1.56E-2	-2.48E+1	3.70E+0
PET	MJ	2.56E+1	6.38E-1	2.43E+0	2.87E+1	2.76E-1	2.77E+0	1.61E-2	-2.68E+1	4.91E+0
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	2.39E-2	7.23E-5	7.77E-3	3.18E-2	2.91E-5	1.70E-3	1.80E-5	-8.20E-3	2.53E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.15E-5	1.50E-6	6.83E-7	1.36E-5	6.57E-7	5.31E-6	1.78E-8	-4.36E-6	1.53E-5
NHWD	kg	9.50E-2	3.77E-2	2.78E-3	1.35E-1	1.59E-2	1.16E-1	6.47E-2	-2.23E-2	3.10E-1
RWD	kg	4.56E-5	3.90E-6	9.78E-7	5.05E-5	1.75E-6	1.07E-5	9.55E-8	-1.29E-5	5.02E-5
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0



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